

WHAT IS CLAIMED IS:

1 1. A method for storing data by positioning a write head over a
2 moving storage medium and providing a write current to the write head, the method
3 comprising:

4 detecting a writing error;
5 suspending the write current in response to the writing error while
6 allowing the storage medium to continue moving;
7 repositioning data that would have been stored during the suspending
8 of the write current; and
9 supplying write current to store the repositioned data on the storage
10 medium.

1 2. The method of claim 1 wherein error correction information is
2 encoded in the data on the storage medium and wherein the step of detecting a
3 writing error comprises:

4 comparing data written to the storage medium to data read from the
5 storage medium to detect errors in the data; and
6 wherein the steps of repositioning data and supplying write current
7 to store the repositioned data are performed if errors in the data exceed a threshold
8 based on capability of the encoded error correction information to recover the data
9 that would have been stored.

1 3. The method of claim 1 wherein error detection and correction
2 information is encoded in the data on the storage medium and wherein the step of
3 detecting a writing error comprises:

4 reading the error detection information to detect errors in the data;
5 and
6 wherein the steps of repositioning data and supplying write current
7 to store the repositioned data are performed if errors in the data can not be corrected
8 using the encoded error correction information.

1 4. The method of claim 1 wherein the step of detecting a writing
2 error comprises:

3 indicating a writing error based on positioning of the write head
4 relative to the storage medium.

1 5. The method of claim 4 wherein the step of detecting a writing
2 error comprises:

3 indicating a writing error based solely on positioning of the write
4 head relative to the storage medium.

1 6. The method of claim 1 wherein the storage medium includes write
2 head positioning information and wherein the step of detecting a writing error
3 comprises:

4 indicating a writing error based on the write head positioning
5 information.

1 7. The method of claim 1 wherein the storage medium comprises a
2 tape.

1 8. The method of claim 1 further comprising:
2 measuring span of the writing error; and
3 repositioning and writing the data only if the span of the writing error
4 is less than a corresponding threshold.

1 9. The method of claim 1 further comprising:
2 formatting data for writing by grouping data into sub-blocks, adding
3 sub-block sequencing information, write pass information, and error detection
4 information to each sub-block of the data.

1 10. The method of claim 1 further comprising distinguishing current
2 data from previously written data stored on the storage medium.

1 11. A system for storing data on a moving storage medium, the
2 system comprising:

3 a servo position control for positioning a read/write head relative to
4 the storage medium and providing a tracking signal indicative of read/write head
5 position relative to tracking information on the storage medium; and

6 a processor for grouping data to be stored on the storage medium,
7 adding write pass information, and encoding error correction and detection
8 information in the data, and selectively supplying a write signal to the read/write
9 head to store the data on the storage medium wherein the processor suspends the
10 write signal in response to detection of a writing error while allowing the storage
11 medium to continue moving, selectively repositions data that would have been
12 stored, and selectively supplies a write signal to store the repositioned data on the
13 storage medium.

1 12. The system of claim 11 wherein the processor compares data
2 written to the storage medium to data read from the storage medium to detect errors
3 and selectively suspends the write signal if the errors exceed a corresponding
4 threshold based on the error correction information.

1 13. The system of claim 11 wherein the processor selectively
2 suspends the write signal based on positioning of the write head relative to the
3 storage medium.

1 14. The system of claim 13 wherein the processor selectively
2 suspends the write signal based solely on positioning of the write head relative to
3 the storage medium.

1 15. The system of claim 13 wherein positioning of the write head
2 relative to the storage medium is detected based on a comparison of data written to,
3 and read from, the storage medium.

1 16. The system of claim 13 wherein positioning of the write head
2 relative to the storage medium is detected based on write head tracking information
3 stored on the storage medium.

1 17. The system of claim 11 wherein the storage medium comprises
2 a magnetic tape having read/write head positioning information and a plurality of
3 generally parallel data channels.

1 18. The system of claim 11 wherein the processor measures span of
2 the writing error and repositions and writes the data only if the span of the writing
3 error is less than a corresponding threshold.

1 19. The system of claim 11 wherein the processor measures span of
2 the writing error and repositions and writes the data only if the span of the writing
3 error is between first and second thresholds wherein the first threshold is based on
4 the span and the error correction information.

1 20. The system of claim 19 wherein the second threshold is based
2 on the span and capacity of the storage medium.

3 21. A computer readable storage medium having stored data
4 representing instructions executable by a processor to control a data storage device
5 that positions a write head over a moving storage medium and provides a write
6 current to the write head, the computer readable storage medium comprising:
7 instructions for detecting a writing error;

8 instructions for suspending the write current in response to the
9 writing error while allowing the moving storage medium to continue moving;

10 instructions for repositioning data that would have been stored during
11 the suspending of the write current; and

12 instructions for supplying a write current to store the repositioned
13 data on the moving storage medium.

1 22. The computer readable storage medium of claim 21 wherein
2 error correction information is encoded in the data on the moving storage medium
3 and wherein the instructions for detecting a writing error comprise:

4 instructions for comparing data written to the moving storage medium
5 to data read from the moving storage medium to detect errors in the data; and

6 instructions for indicating a writing error if errors in the data exceed
7 a corresponding threshold.

1 23. The computer readable storage medium of claim 21 wherein
2 error detection and correction information is encoded in the data on the moving
3 storage medium and wherein the instructions for detecting a writing error comprise:

4 instructions for reading the error detection information to detect
5 errors in the data; and

6 instructions for indicating a writing error if errors in the data can not
7 be corrected by the encoded error correction information.

1 24. The computer readable storage medium of claim 21 wherein the
2 instructions for detecting a writing error comprise:

3 instructions for indicating a writing error based on positioning of the
4 write head relative to the moving storage medium.

1 25. The computer readable storage medium of claim 24 wherein the
2 instructions for detecting a writing error comprise:

3 instructions for indicating a writing error based solely on positioning
4 of the write head relative to the storage medium.

1 26. The computer readable storage medium of claim 21 wherein the
2 moving storage medium includes write head positioning information and wherein
3 the instructions for detecting a writing error comprise:

4 instructions for indicating a writing error based on the write head
5 positioning information.

1 27. The computer readable storage medium of claim 21 further
2 comprising:

3 instructions for measuring span of the writing error; and
4 instructions for repositioning and writing the data if the span of the
5 writing error exceeds a corresponding threshold.

1 28. The computer readable storage medium of claim 21 further
2 comprising:

3 instructions for formatting data for writing by grouping data into sub-
4 blocks, adding sub-block sequencing information, write pass information, and error
5 detection information to each sub-block of the data.

1 29. The computer readable storage medium of claim 21 further
2 comprising instructions for distinguishing current data from previously written data
3 stored on the moving storage medium.